

REMARKS

Upon entry of the Amendment, claims 1, 3-7, 9 and 12-16 will be all the claims pending in the application. Claim 1 has been amended to incorporate therein the partial recitation of claim 2. Claim 2 has been canceled. Withdrawn method claim 16 has been amended to include all of the limitations of device claim 1. If claim 1 is found to be allowable, Applicants respectfully request the Examiner to rejoin claim 16 pursuant to MPEP § 821.04.

Claim 1 has been amended to recite that the positive-electrode-metal-containing layer having a thickness of 1 to 8 nm. Support for the amendment to claim 1 can be found in the specification, for example, at page 10, lines 7 to 12, and Table 1.

No new matter has been added. Entry of the Amendment is respectfully requested.

Claims 1-7 and 9-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Onomura (U.S. Pat. No. 6,067,309) in view of Takatani (JP 10-303504).

Applicants respectfully traverse.

Claim 1 presently recites that the positive-electrode-metal-containing layer having a thickness of 1 to 8 nm.

Onomura discloses at column 6, lines 37-40, that when thermal treatment is provided under nitrogenous atmosphere at 350°C, Pt is diffused down to a depth, which is three times deeper than the thickness of the layered film at its maximum. Further, Onomura discloses at column 6, line 34, that the thickness of Pt is 5 nm, and therefore, the thickness of the alloy layer 15 of Onomura is calculated to be 15 nm.

Accordingly, Onomura does not disclose or suggest a gallium nitride compound semiconductor light-emitting device comprising a positive-electrode-metal-containing layer having a thickness of 1 to 8 nm, as required by present claim 1.

In the present application, Pt film does not diffuse to a depth of 15 nm, as opposed to the disclosure of Onomura, since no thermal treatment is carried out.

Table 1 of the present specification demonstrates the relationship between the thickness of the positive-electrode-metal-containing layer and the forward voltage.

As shown in Table 1, the forward voltage is 3.2 to 3.3V when the positive-electrode-metal-containing layer has a thickness of 1 to 8 nm. On the other hand, the forward voltage rises to 3.6 V when the positive-electrode-metal-containing layer has a thickness of 10 nm; the forward voltage also rises to 4 V when the positive-electrode-metal-containing layer has a thickness of 0.1 nm.

The thickness range of 1 to 8 nm of the positive-electrode-metal-containing layer is a critical feature of the present invention, which is not taught, suggested or otherwise recognized by Onomura in view of Takatani.

Onomura, either alone or in view of Takatani, does not disclose or suggest the positive-electrode-metal-containing layer, as required by amended claim 1.

Further, claim 1 recites that the surface portion of the contact metal layer on the p-type semiconductor layer side includes a semiconductor-metal-containing layer that contains a Group III metal at a concentration of 1 to 20 at.% with respect to the total amount of metal atoms contained in the semiconductor-metal-containing layer.

The reason for setting the upper limit to 20 at.% relates to light transmittance. The instant specification describes on page 12, lines 9 to 12, that when the concentration is in excess of 50 at.%, light transmittance may be lowered. Those of ordinary skill in the art understand that the less the concentration, the higher the light transmittance.

In view of the above, Applicants respectfully submit that the present claims are patentable over Onomura in view of Takatani, withdrawal of the foregoing rejection under 35 U.S.C. § 103 and rejoinder of withdrawn method claim 16 is respectfully requested.

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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Date: December 17, 2009